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7/16/02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Ward, Gregory F.

Serial No: 09/532, 395 (Divisional) 08/613,336 (Parent)

Filed: 03/22/2000

For: Thermo-Mechanical Modification Of Nonwoven Webs

Art Unit: 1771

Examiner: Pratt, Christopher C.

AMENDMENT
and
RESPONSE TO OFFICE ACTION DATED 3/15/2002

Assistant Commissioner for Patents and Trademarks
Washington, District of Columbia, 20231

Sir:

This is in response to the Office Action dated 3/15/2002. A one month's time extension is requested. The request and fee are attached to this document.

Applicant's Response to:

(1) Claim Rejections Under 35 USC § 112, and

(2) Obviousness Rejections With Reference to Hassenboehler Under 35 USC § 103 (a)

The applicant respectfully wishes to traverse the Claim Rejections Under 35 USC § 112 for indefiniteness as follows:

1. The limitation "said anisotropic precursor web" has antecedent basis on Page 5, last paragraph and Page 11, first paragraph after "Experimental Data". Further, the adjective anisotropic as used in "anisotropic precursor web" means that the level of physical properties, such as tensile strength and elongation, are significantly different as

measured along different axes i.e the machine direction or X axis and the cross machine direction or 'Y' axis. This term is well known among those who are familiar with the art of nonwovens. Nonwovens, because they are typically produced in the "X" axis direction, have different properties in the "Y" or perpendicular direction.

Regarding the term 'intimate blend" it refers to a close (intimate) mixing of the different fibers that comprise the blend as opposed to the laminates cited in the Hassenboehler citation. Further, Hassenboehler does not claim nor teach the use of a fiber mixture in regard to cellulosic or natural fibers but a laminate of two distinct fiber species wherein each of the layers is comprised of a different fiber, resin or natural, and the layers are laminated by the use of an adhesive, thermal bonding or other bonding means.

Regarding "improved softness" and "improved conformability" these terms are related to subjective interpretation. The specification provides a relative standard as described below. One with ordinary skill in the arts, based on 30 years of personal experience in the nonwoven and disposable products arts, understands that "improved softness" means an improvement in the "hand" or "feel" of the nonwoven under examination. "Hand" and "feel" are improved by increasing the softness as revealed in the before and after data of Table 2 on Page 13. Based on subjective evaluations using a human panel the process of the instant application improved each web type from samples 1 to 10. Human test panels are commonly used to evaluate improvements in product properties that are difficult or impossible to measure by objective or instrumental means. These properties include softness, conformability, odor, color, beauty and similar subjective characteristics.

Likewise, "improved conformability" means the improvement in the ability of the subject material to conform or yield elastically to an applied force. This improvement is shown in Tables 1 and 5, which describe the elasticity of the various materials evaluated. Once again, one with ordinary skill in the arts would recognize that any elasticity imparted to a -

See also the following changes and modifications of Claims 1-9 below in response to the rejections under 35 USC 103(a) for obviousness.

Claims 1-9 Were Rejected As Obvious Under 35 USC 103(a).

Traverse Of The Examiner's Assertion That The Webs Produced By The Teachings Of The Instant Application Are The Same As Those Of Hassenboehler

The applicant respectfully traverses the objection that the webs produced by the teachings of the instant application are the same as those of Hassenboehler. This is due to a number of factors which the Applicant asserts is strong evidence that the products claimed are substantially different from those of Hassenboehler:

1. The instant Application teaches the use of a dramatically lower strain rate. The reason for the lower strain rate, among others, is that low strain rates impart softness as well as elasticity. Increased softness compared to the precursor web is neither taught, demonstrated nor claimed by Hassenboehler.
2. The webs produced by the instant Application have a different morphology than Hassenboehler. This is demonstrated by high increases in the filtration efficiency of Hassenboehler due to reduction in the web pore size and distribution after processing. The product webs of the instant application have no significant reduction in the web pore size and distribution after processing as shown in Table 4 of the Application.
3. Hassenboehler teaches only the use of laminates/ composites not single webs of blends of different fibers. (Please see the explanation below.)

4. Hassenboehler et al. '482 teach that the web may be composed of synthetic or thermoplastic fibers however they do not anticipate the instant invention's use of webs containing non-thermoplastic fibers such as cellulosics (rayon, cotton, other natural fibers, glass, inorganic fibers or metallic fibers). It is clear, that given the large number of fibers designated in the '482 patent (col. 6, lines 53 to 65), that Hassenboehler et al. did not consider non-thermoplastic fibers. This further distinguishes the instant invention over the '482 patent and tends to prove the non-obviousness of the use of non-thermoplastic fibers. The Hassenboehler, Jr. et al. US 5,443,606 describes the use of cellulosic fibers as a distinct layer but not as part of the fiber blend. This also shows non-obviousness and further distinguishes the instant web invention from the '482 and the '606 patents.

The applicant respectfully traverses the objection that the precursor web of Hassenboehler is a blend as the Examiner asserts on page 3, line 5 of the instant Detailed Action. The art taught by the instant Application are neither considered, taught nor claimed by Hassenboehler.

The applicant respectfully traverses the objection that one of ordinary skill in the art would have thought of utilizing high percentages of cotton or other cellulosics in a thermally bonded web because cellulosics are not thermally bondable. Further later work done by Hassenboehler and Wadsworth are concerned with laminated composites of cellulosic webs and polymeric webs

Hassenboehler's own explanation in Column 15, lines 17-20 describes composite webs and laminated webs. Hassenboehler asserts in Column 15, lines 14-19 that the "precursor web may comprise a composite of the following combinations.... (that) make useful combinations." These combinations do not describe blends but rather laminates which also known in the nonwoven arts as composites.

Fiber blends are different than composites in the nonwoven arts as well as in their dictionary meanings (see Webster's Ninth New Collegiate Dictionary, 1986 by Merriam-Webster. Further examples of the understanding in the art that a composite is not a blend but a laminate is the Joint INDA-TAPPI (INTC 2000) Conference 9/26-28/2000, Dallas Texas, wherein Papers given by Frank Cousant, Engineered Composite Products in Advanced Filtration; R. Griffin, Paper and Meltblown Composites-A Review; and Production Optimization of SM and SMS Composites ...Webs by Larry Wadsworth, a co inventor of Hassenboehler's 5,244,482 all consider composites as laminates of different nonwovens.

Regarding the Examiner's assertion that (cotton and/or other cellulosic) fibers are used to increase absorbency this is neither taught nor claimed in the instant application. The object of cellulosic fiber use is for softness considerations. It is well known in the arts that cellulosic fibers are used to improve web breath ability.

An additional note showing that product webs of the instant Application are different than Hassenboehler is the fact that the product webs of the instant Application have been produced in Taiwan and sold in Asia since 1996 whereas to my knowledge there have been no commercial applications of the Hassenboehler process or its web

products anywhere even though it is aggressively marketed by the University of Tennessee Research Corporation.

PLEASE CANCEL CLAIMS 1-9 AND SUBSTITUTE NEW CLAIMS 10-18 AS FOLLOWS:

10. A nonwoven web having elastic properties and improved softness and conformability in the cross-machine direction wherein said anisotropic precursor web is composed of an intimate blend of thermally bonded thermoplastic and nonthermoplastic fibers, said blend containing from 60 to 100% thermoplastic fibers and the remainder nonthermoplastic fibers, said precursor web being continuously drawn within a web heating means by a multiplicity of tension means wherein the heated web is subjected to a variable tension means sufficient to provide a strain rate of at least 3.5 in./in./minute but less than 9.5 in./in./minute, said strain rate calculated based on the apparent gage length between individual elements of said tension means, whereby the resultant web is characterized by a narrowing of its lateral dimension, an increase in its length and the development of a web elasticity of at least 85% recovery after being elongated at least 50% in the direction perpendicular to and in the same plane as the drawing forces, improved softness and improved conformability and without substantial changes in the pore size or pore size distribution.

11. The nonwoven web of Claim 10 wherein the thermoplastic fibers are selected from the group including polyolefins, polyesters, polyamides, and their respective copolymers.

12. The nonwoven web of Claim 10 wherein said non-thermoplastic fibers are selected from the group including natural cellulosics, regenerated cellulosics, natural fibers, glass, inorganic fibers or metallic fibers.

13. The web of claim 10 wherein said precursor web is laminated to a thermoplastic elastomeric film.

14. The nonwoven web of Claim 10 wherein said precursor web is a thermally bonded laminate or composite comprising two or more thermoplastic webs selected from the group including spunbonded nonwovens, meltblown nonwovens, thermally bonded carded nonwovens, thermoplastic foams and thermoplastic films.

15. A nonwoven web having elastic properties in the machine direction and improve softness and conformability wherein said anisotropic precursor web composed of an intimate blend of thermally bonded thermoplastic and nonthermoplastic fibers, said blend containing from 60 to 100% thermoplastic fibers and the remainder nonthermoplastic fibers, said precursor web being continuously drawn within a heated chamber by a drawing means wherein the heated web is subjected to a tension sufficient to provide a strain rate of at least 3.5 in./in./minute but less than 9.5 in./in./minute said strain rate calculated based on the apparent gage length between individual elements of said tension means, whereby the resultant web is characterized by a widening of its lateral dimension, a decrease in its length and the development of a web elasticity of at least 80% recovery after being elongated at least 50% in the direction perpendicular to and in the same plane as the drawing forces, improved softness and improved conformability, and without substantial changes in the pore size or pore size distribution.

16. The nonwoven web of Claim 15 wherein said thermoplastic fibers are selected from the group including polyolefins, polyesters, polyamides, and their respective copolymers.

17. The nonwoven web of Claim 15 where said nonthermoplastic fibers are selected from the group including natural cellulosics, regenerated cellulosics, natural fibers, glass, inorganic fibers or metallic fibers.

18. The nonwoven web of Claim 15 where the precursor web is a thermally bonded laminate comprising two or more thermoplastic webs selected from the group including spunbonded nonwovens, meltblown nonwovens, thermally bonded carded nonwovens, thermoplastic foams and thermoplastic films.

CONCLUSION

For all of the above reasons, applicant submits that the claims are now in proper form, and the claims all define patentability over the prior art and are not obvious with respect to prior art. I believe that this application is now in condition for allowance which action I respectfully solicit.

Conditional request for Constructive Assistance

If for any reason this application is not believed to be in full condition for allowance, applicants respectfully request the constructive assistance of the Examiner pursuant to M.P.E.P. § 706.03(d) and § 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without need for further proceedings.

Very respectfully,

Gregory F. Ward, Applicant Pro Se

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1771

PTO/SB/21 (08-00)
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U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission: 13

Application Number	09/532,395
Filing Date	03/22/2000
First Named Inventor	Ward, Gregory F.
Group Art Unit	1771
Examiner Name	Pratt, Christopher C.
Attorney Docket Number	

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ENCLOSURES *(check all that apply)*

- [x] Fee Transmittal Form
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- [x] Amendment / Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [x] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Response to Missing Parts/ Incomplete Application
  - [ ] Response to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Assignment Papers *(for an Application)*
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- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
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- [ ] Status Letter
- [x] Other Enclosure(s) *(please identify below)*:

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Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Gregory F. Ward
Signature	
Date	06/15/2002

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231 on this date: 06/15/2002

Typed or printed name	Gregory F. Ward		
Signature		Date	06/15/2002

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FEE TRANSMITTAL for FY 2002

Patent fees are subject to annual revision.

Application Number	09/352,395
Filing Date	03/22/2000
First Named Inventor	Ward, Gregory F.
Examiner Name	Pratt, Christopher C.
Group Art Unit	1771
Attorney Docket No.	

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TOTAL AMOUNT OF PAYMENT ($) 55.00

METHOD OF PAYMENT

1. ☐ The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit Account Number

Deposit Account Name

☐ Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17

☐ Applicant claims small entity status. See 37 CFR 1.27

2. ☑ **Payment Enclosed:**

☑ Check ☐ Credit card ☐ Money Order ☐ Other

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
101	740	201	370	Utility filing fee	
106	330	206	165	Design filing fee	
107	510	207	255	Plant filing fee	
108	740	208	370	Reissue filing fee	
114	160	214	80	Provisional filing fee	

SUBTOTAL (1) ($) 0.00

2. EXTRA CLAIM FEES

	Extra Claims		Fee from below	Fee Paid
Total Claims	-20** =	X		=
Independent Claims	- 3** =	X		=
Multiple Dependent				=

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
103	18	203	9	Claims in excess of 20
102	84	202	42	Independent claims in excess of 3
104	280	204	140	Multiple dependent claim, if not paid
109	84	209	42	** Reissue independent claims over original patent
110	18	210	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 0.00

☐ or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for *ex parte* reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	55.00
116	400	216	200	Extension for reply within second month	
117	920	217	460	Extension for reply within third month	
118	1,440	218	720	Extension for reply within fourth month	
128	1,960	228	980	Extension for reply within fifth month	
119	320	219	160	Notice of Appeal	
120	320	220	160	Filing a brief in support of an appeal	
121	280	221	140	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,280	241	640	Petition to revive - unintentional	
142	1,280	242	640	Utility issue fee (or reissue)	
143	460	243	230	Design issue fee	
144	620	244	310	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Processing fee under 37 CFR 1.17(q)	
126	180	126	180	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	740	246	370	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	740	249	370	For each additional invention to be examined (37 CFR § 1.129(b))	
179	740	279	370	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 55.00

SUBMITTED BY

Name (Print/Type)	Gregory F. Ward	Registration No. (Attorney/Agent)		Complete (if applicable) Telephone	770-521-9873
Signature				Date	06/15/2002

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